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REMARKS

This response supplements the response filed on August 22, 2006. Accompanying this response is a Declaration of Robert J. Dobbs under 37 C.F.R. §1.132. Claims 1-11, 60, 64-70 and 77-96 have been amended. Claims 12-22 have been cancelled. Dependent claims 114-123 have been added. No new matter has been added. Claims 1-11, 60-70 and 77-123 are now pending for examination with claims 1, 60, 79, and 88 being independent.

Declaration of Robert J. Dobbs under 37 C.F.R. §1.132

A Declaration of Robert J. Dobbs under 37 C.F.R. §1.132 ("declaration") is being filed herewith to support this response. The declaration explains that grinding media formed of multi-carbide material for milling product in a media mill would not have been obvious to one of ordinary skill in the art before the invention that led to the above-referenced application.

In particular, the declaration explains that the Rudy patents fail to teach or suggest any type of grinding media suitable for milling product in a media mill or any type of method for milling product in a milling process (e.g., Paragraph 4). Also, the declaration explains why one would not have been motivated to use the multi-carbide material described in the Rudy patents as the grinding media in Verhoff (e.g., Paragraph 5). The declaration also provides evidence regarding a number of secondary considerations that support the non-obviousness of the claimed invention including that: (a) such grinding media solves several long standing problems in the milling industry (e.g., Paragraph 6); (b) such grinding media enables unexpectedly good results (e.g., Paragraphs 8-9, Exhibits A-F); and, such grinding media and results have been met with significant initial skepticism from experts in the milling and/or small particle industry (e.g., Paragraph 7).

Interview

Applicant thanks the Examiner for the telephone discussion on September 11, 2006 in which the Examiner (Alvin T. Raetzsch) and attorney for Applicant (Robert Walat) participated. The references of record (the Rudy patents and Verhoff) were discussed, as well as possible claim amendments to distinguish the references including amending the "grinding media" claims to recite a "milling apparatus" that comprise the "grinding media". Attorney for Applicant stated that the

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Rudy patents failed to teach or suggest grinding media comprising multi-carbide material which are used to mill product in a media mill.

Drawings

With the response filed on August 22, 2006, Applicant submitted a replacement sheet which included FIG. 2 to address the objection in the Office Action.

Rejection of Claims 1-10, 12-21, 53-54, 60-69 and 71-72

Claims 1-10, 12-21, 53-54, 60-69 and 71-72 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,737,289 and U.S. Patent No. 3,840,367.

Independent claim 1 has been amended to recite a "milling apparatus" that includes grinding media used in a media mill to mill product, wherein the grinding media comprise a multi-carbide material. As noted in the declaration, the Rudy patents disclose metal cutting tools which are not used to mill product in a media mill. Rudy fails to teach or suggest any type of milling apparatus that includes grinding media used in a media mill, wherein the grinding media comprises multi-carbide material. Moreover, as described further below and noted in the declaration, one of ordinary skill in the art would not have been motivated to use the multi-carbide material in Rudy as grinding media to mill product in a media mill as claimed.

Independent claim 60 recites the step of milling a product in a media mill using grinding media, wherein the grinding media comprise a multi-carbide material. As noted above, the multi-carbide material in Rudy is not used to mill product in a media mill as recited in claim 60.

Because Rudy fails to teach or suggest each limitation of independent claims 1 and 60, these claims are patentable in view of Rudy. The remaining claims that stand rejected on this ground either have been cancelled or depend from one of the patentable independent claims and, thus, are also patentable.

Accordingly, Applicant respectfully requests withdrawal of the rejection on this ground.

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Rejection of Claims 11, 22-52, 55-59, 70 and 73

Claims 11, 22-52, 55-59, 70 and 73 were rejected under 35 U.S.C. 103(a) as being unpatentable over the Rudy patents and further in view of U.S. Patent Publication No. 2002/0047058 (Verhoff).

As noted in the response filed on August 22, 2006 and the declaration, one of ordinary skill in the art would not have been motivated to combine the teachings in the Rudy patent with the teaching in Verhoff in the manner stated in the Office Action. Specifically, one would not have been motivated to use the multi-carbide material described in the Rudy patent as the grinding media in Verhoff. At the time of the filing date of the present application, conventional wisdom in the art was that materials having the properties (e.g., super hard, extremely high wear resistance) of multi-carbide materials would not have been suitable grinding media for milling product in a media mill. If used to mill product in a media mill, conventional wisdom taught that grinding media having such properties would be detrimental to the milling process. For example, such grinding media would be expected to damage the milling equipment and/or fracture one another. Therefore, based on the properties of multi-carbide material, one of ordinary skill in the art would not have been motivated to use multi-carbide material as grinding media.

As noted in the response filed on August 22, 2006, the long time lapse (30+ years) between the Rudy patents (which disclose multi-carbide material in metal cutting tools) and the filing date of the present application without any other reference disclosing use of multi-carbide material as grinding media suitable for milling product in a media mill is further evidence of the non-obviousness of this concept. Certainly, during this time period, much work had been done in the art to examine different grinding media materials. Indeed, one aspect of the present invention, is the realization that multi-carbide material could be used as grinding media suitable for milling product in a media mill.

Because one of ordinary skill in the art would not have been motivated to combine the Rudy patents with Verhoff in the manner stated in the Office Action, Applicant respectfully submits that a prima facie case of obviousness has not been met.

Accordingly, Applicant respectfully requests withdrawal of the claim rejections on this ground.

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Claims Added in Response Filed August 22, 2006

Claims 77 and 78 depend from claim 1 which is patentable is over the cited references for reasons noted above. Thus, these claims are patentable for at least these reasons.

Independent claim 79 has been amended to recite a "milling apparatus" that includes grinding media used in a media mill to mill product, wherein the grinding media comprise a multi-carbide material. As noted above, the Rudy patents fail to teach or suggest any type of milling apparatus that includes grinding media used in a media mill, wherein the grinding media comprises multi-carbide material. Also, one of ordinary skill in the art would not have been motivated to combine the Rudy patents and Verhoff for reasons noted above, so claim 79 is also patentable over this combination. Claims 80-87 depend from claim 79 and are, thus, patentable for at least these reasons.

Independent claim 88 has been amended to recite a "milling apparatus" that includes grinding media used in a media mill to mill product, wherein the grinding media comprise a multi-carbide material. As noted above, the Rudy patents fail to teach or suggest any type of milling apparatus that includes grinding media used in a media mill, wherein the grinding media comprises multi-carbide material. Also, one of ordinary skill in the art would not have been motivated to combine the Rudy patents and Verhoff for reasons noted above, so claim 88 is also patentable over this combination. Claims 89-96 depend from claim 88 and are, thus, patentable for at least these reasons.

Claims 97-113 depend from independent claim 60 which is patentable for reasons noted above. Thus, these claims are patentable for at least these reasons.

New Claims

Claims 114-123 have been added. These claims depend from claims which are patentable over the cited references for reasons noted above and, thus, are also patentable.

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In view of the above amendment, applicant believes the pending application is in condition for allowance.

Dated: 9/12/06

Respectfully submitted,

By 

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